



DHEC's Office of Solid Waste Reduction and Recycling

For Your Information...

Landfill 101

In an ideal world, we wouldn't throw anything away. We would reuse or recycle it.

In the real world, however, some things are thrown away. Where is away? Away is usually a landfill.

All of us make solid waste – commonly known as trash or garbage. The waste that we make is managed for us. How? What we don't reuse or recycle is burned (sent to an incinerator) or disposed of (sent to a landfill).

Just what is a landfill? A landfill is a large, outdoor site designed for the disposal of waste. There are different kinds of landfills that accept different materials. There are, for example, construction and demolition (C&D) debris landfills that can accept only C&D debris. Other types of landfills include industrial, hazardous waste and land-clearing debris landfills. But, generally, the trash and garbage that we throw away every day is disposed of in a municipal solid waste (MSW) landfill. For more information on how much we dispose of in MSW landfills, see the "FYI: Garbage 101" fact sheet.

Landfills are a fact of life. Although waste reduction, reuse, recycling and composting divert large amounts of MSW from disposal, some waste still must be disposed of in landfills.

Landfills are not just holes in the ground.

In the past, there were few or no regulations regarding landfills. It showed. Many people remember smelly, unlined dumps that contaminated groundwater and caused other environmental problems. It's different today. Modern landfills are well-engineered facilities that must meet strict U.S. Environmental Protection Agency (U.S. EPA) and S.C. Department of Health and Environmental Control (DHEC) regulations that were established to protect human health and the environment. All landfills must be approved (receive a permit) from DHEC. When you think of it this way – and most of us don't – garbage disposal is no less an essential public service than police or fire protection.

MSW landfills must be built in suitable geological areas away from faults, wetlands, flood plains and other restricted areas. The design of landfills includes plastic liners and other materials like clay to prevent groundwater contamination. Monitoring is required to test groundwater



quality and determine if there is any contamination. Daily operation of landfills includes compacting (crushing) and covering waste with several inches of soil or other cover material to reduce odor and litter as well as to control rodents and pests. Closed landfills must have a final cover that includes a synthetic cap and a soil layer. Once the landfill is closed, the responsibility of the landfill operator doesn't end. Landfill operators must set aside funding to provide environmental protection during and after the closing of a landfill. In short, today's landfills are expensive to design, build and maintain.

Beyond the expense, landfills also are difficult to build simply because the public frequently opposes new construction. People remember the past poor practices and are concerned about their health and environment as well as property values, noise, odor and traffic if a landfill is built near their community. All of this – according to some experts – is somewhat ironic in that the modern landfill was designed to overcome the problems of the past, particularly the twin problems of open dumps and garbage incinerators that befouled the air.

A Brief History of Landfills

Who invented the modern landfill that led to the MSW landfills of today? No one knows. Some experts say the British did in the 1920s. Others say there were "sanitary" landfills (landfills where the new garbage is covered daily by some material) in the U.S. earlier than that, for example, in Champaign, Illinois in 1904.

This much is certain – wherever and whenever the first modern landfill was built and all those built afterwards, the drive to build them was public health. People caught on to the connection of sickness in the community and open dumps. “Sanitary” landfills gradually caught on in the 1930s but got their biggest boost from the U.S. Army Corps of Engineers, which made sanitary landfills the disposal method of choice for military facilities during World War II. By 1945, about 100 American cities had “sanitary” landfills. Within 15 years, that number had increased to about 1,400.

And what’s going on today?

Nationwide, the number of active MSW landfills has shrunk from nearly 8,000 in 1988 to 1,654 in 2005 according to the U.S. EPA. There are thousands of closed landfills. In South Carolina, there were 18 permitted MSW landfills operating in fiscal year 2006. But what landfills lack in numbers is made up in size. Landfills are much bigger today than they were in the past. As such, today’s landfills have a much longer lifespan and frequently accept waste from a much larger geographical area.

The Myth of Biodegradation

Most of us assume that when we throw something away it biodegrades – decomposes or breaks down – in the landfill. You know, a return to nature kind of thing. Well, not necessarily. It depends on what was thrown away – and a lot of other things.

One of the most recognized research efforts on biodegradation has been the work done as part of the Garbage Project at the University of Arizona. Researchers mined local landfills to learn about modern civilization. Among their findings – garbage doesn’t break down in landfills.

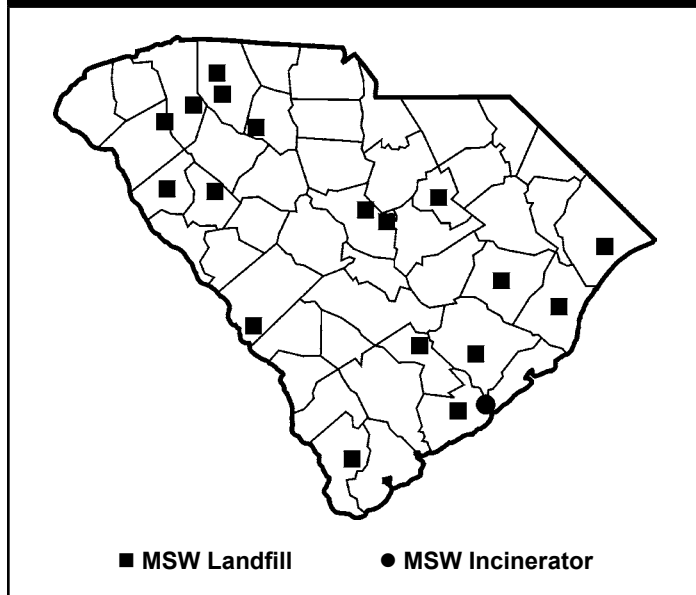
The Garbage Project discovered that landfills are a much more static structure and that biodegradation takes a lot longer than previously thought. Air and water are necessary for biodegradation. Under normal landfill conditions – that is when the garbage is covered by dirt and the landfill is relatively dry – the only garbage that truly

decomposes are certain types of food scraps and yard trimmings (banned from MSW landfills in South Carolina) and even that takes a long time. Hot dogs and pastries, buried as long as 15 years ago, were still recognizable. Grass clippings were still green. Newspapers, long thought to be easily biodegradable, were found in landfills virtually intact after being buried for decades. The bottom line is this: throwing something away is a lifetime decision in more ways than one.

Think before you throw.

For now, like them or not, there is a need for MSW landfills. But each of us should do our part to reduce, reuse, recycle and compost whenever possible to save landfill space as well as natural resources and energy. For more information, visit DHEC’s Office of Solid Waste Reduction and Recycling Web site at www.scdhec.gov/recycle or call 1-800-768-7348.

South Carolina’s Permitted MSW Disposal Facilities



SOURCE: “S.C. Solid Waste Management Annual Report for Fiscal Year 2006”



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Reduction & Recycling
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